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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,294	09/11/2003	Shoji Hashimoto	116442	3573
25944	7590	11/10/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			MILLER, TAKISHA S	
			ART UNIT	PAPER NUMBER
			2855	

DATE MAILED: 11/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p align="center">10/659,294</p>	<p>Applicant(s)</p> <p align="center">HASHIMOTO ET AL.</p>	
	<p>Examiner</p> <p align="center">Takisha Miller</p>	<p>Art Unit</p> <p align="center">2855</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)</p> <p align="center">Paper No(s)/Mail Date <u>09/11/2003</u>.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)</p> <p align="center">Paper No(s)/Mail Date. ____.</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: ____.</p> |
|---|--|

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Hollander (3,145,563).

- a. With respect to claims 1 and 3, Hollander teaches a force sensing element comprising a gauge portion (10) which is formed a p-type semiconductor substrate/lead telluride (PbTe)(Col. 2, lines 9-13) and which is pressed in a thickness direction (15) of the semiconductor substrate (10) upon receiving a force (Col. 3, lines 3-6) and a plurality of electrodes (16) which are electrically connected to the gauge portion (10) such that a current path extending in a direction corresponding to the thickness direction (15) of the semiconductor substrate (10) is formed in the gauge portion (10)(Fig. 1).

- b. With respect to claims 2 and 3, Hollander teaches a force sensing element wherein the current path is so confined as to be formed in a certain part of the gauge portion (10)(Col.2, lines 45-52).

Art Unit: 2855

- c. With respect to claim 4, Hollander teaches a force sensing element wherein a center of a region (10a) receiving a force of the gauge portion (10) is located at a center of a region to which the force is applied (Fig. 1).
 - d. With respect to claims 5 and 6, Hollander teaches a force sensing element wherein the gauge portion (10) is formed such that the current path is formed in a crystal direction which exhibits a high sensitivity for a transmitted force (Col.3, lines 17-33).
 - e. With respect to claim 7, Hollander teaches a force sensing element wherein the electrodes (16) include a first electrode (16/top) which is electrically connected to the gauge portion (10) and a second electrode (16/bottom) which is so formed on the other face (10a) of the semiconductor substrate (10) as to face the first electrode (16)(Fig.1)(Col. 3, lines 46-52).
4. Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Rocha et al. (4,546,658)(hereinafter Rocha).
- a. With respect to claim 14, Rocha teaches a force sensing element (10) comprising a first semiconductor substrate (11), a gauge portion (14) which is formed on one main face (15b) of the first semiconductor substrate (11) and which is pressed upon receiving a force (F), a second semiconductor substrate (12) which is joined on the side of one main face (15b) thereof to the gauge portion (14) of the first semiconductor substrate (11), a first electrode (16) which is formed on the first semiconductor substrate (11) and a second electrode (18) which is formed on the second semiconductor substrate (12) wherein a current path, which extends in the same direction (10a) as a force (F) is applied

to the gauge portion (14), is formed of the first electrode (16) and the second electrode (18)(Fig.2)(Col. 3, lines 35-52).

b. With respect to claim 15, Rocha teaches a force sensing element (10) wherein the first electrode (16) is formed on at least one of the other main face and a lateral face of the first semiconductor substrate (11) and the second electrode (18) is formed on at least one of the other main face and a lateral face of the second semiconductor substrate (12)(Fig.2).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hollander in view of Datwyler (4,144,747).

a. With respect to claims 8 and 10, Hollander teaches a force sensing element comprising a gauge portion (10) which is formed on one main face of a semiconductor substrate (PbTe) and which is pressed upon receiving a force, a plurality of electrodes (16) which are electrically connected to the gauge portion (10) such that a current path extending in a direction corresponding to a thickness direction (15) of the semiconductor substrate is formed in the gauge portion (10). Hollander fails to teach a force transmission block and a force transmission body support portion. Datwyler teaches a

force transmission block (30) and a force transmission body support portion (80/82)(Figs. 14,15). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hollander to include a force transmission block and a force transmission body support portion as taught by Datwyler in order to effectively apply a force along the force sensitive axis of the crystal (see Datwyler; Col. 6, lines 7-9).

- b. With respect to claim 9, Hollander teaches a force sensing element wherein a center of a region (10a) receiving a force of the gauge portion (10) is located at a center of a region to which the force is applied (Fig. 1).
- c. With respect to claims 11 and 12, Hollander teaches a force sensing element wherein the gauge portion (10) is formed such that the current path is formed in a crystal direction which exhibits a high sensitivity for a transmitted force (Col. 3, lines 17-33).
- d. With respect to claim 13, Hollander teaches a force sensing element wherein the electrodes (16) include a first electrode (16/top) which is electrically connected to the gauge portion (10) and a second electrode (16/bottom) which is so formed on the other face (10a) of the semiconductor substrate (10) as to face the first electrode (16)(Fig.1)(Col. 3, lines 46-52).

Conclusion


- 7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (6,450,040); (6,617,764); (5,578,766); (5,499,541); (4,833,929); (4,993,266); (5,349,873); (2003/0177839); (5,341,688) teach force transducers in the related art.

Art Unit: 2855

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Takisha Miller whose telephone number is (571) 272-2184. The examiner can normally be reached on Monday - Friday (7:00 am - 3:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
JAN 11 2000